REMARKS

I. Introduction

Claims 6-12 are currently pending in the present application. Claim 6 has been amended. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

II. Rejection of Claims 6-7, 9-10 and 12 Under 35 U.S.C. § 103(a)

Claims 6-7, 9-10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over "Ziegler" (Corporate Research & Development) in view of U.S. Patent 6,069,670 ("Borer") and U.S. Patent 5,347,599 ("Yamashita"). Applicants respectfully submit that the rejection should be withdrawn for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the elements in the manner contemplated by the claim, and the mere fact that references can be combined or modified does not render the resultant

combination obvious. M.P.E.P. § 2143.01 (citing <u>In re Mills</u>, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)).

Amended claim 6 recites a method for generating an image signal when estimating a motion of image sequences, the method including the step of "starting out from the first motion vector, in a second search step, **determining a second motion vector with a sub-pel accuracy by an aliasing-reducing interpolation filtering**, using a digital filter, a resolution being selected to be higher than that corresponding to a resolution of a pixel raster in the first search step, more than four neighboring pixels being utilized for an interpolation of each pixel, to interpolate pixels between a scanning raster for the first search step; . . . <u>wherein coefficients for at least one of the interpolation filtering in the second search step and the further interpolation filtering in the third search step are determined from a minimization of the interpolation error performance, on the basis of a linear system of equations whose coefficients are derived from the principle of orthogonality, whereby said coefficients for at least one of the interpolation filtering in the second search step and the further interpolation filtering in the third search step are adapted to signals to be coded to achieve aliasing-reducing interpolation filtering with increased resolution of the motion vectors leading to a prediction gain and an increased coding efficiency.</u>" The newly recited subject matter is clearly supported by the original Specification, e.g., at p. 2, l. 25 – p. 3, l. 3, and p. 5, l. 6-23. As clearly indicated in the specification (e.g., p. 2, l. 25 – p. 3, l. 3), the above-recited features achieve aliasing-reducing interpolation filtering with increased resolution of the motion vector leading to a prediction gain and an increased coding efficiency.

In support of the rejection, the Examiner relies on the arguments contained in the previous Office Action, i.e., the Examiner contends that while "Ziegler does not specifically disclose utilizing aliasing reducing interpolation filtering, . . . **Borer teaches motion vector detecting method comprising aliasing reducing interpolation.**" Therefore, the Examiner concludes that "it would have been obvious . . . when estimating a motion of image sequences as

taught by Ziegler to incorporate the concepts as . . . taught by Borer . . . to reduce the unwanted aliasing by utilizing the Borer's interpolation filter." However, as explained in further detail below, Applicants submit that the overall teachings of Borer, even if viewed in combination with the teachings of Ziegler, do not support the Examiner's conclusions.

With respect to the Examiner's citation of Borer as teaching "motion vector detecting comprising <u>aliasing reducing interpolation filtering</u>," Applicants note that the interpolation filtering disclosed in Borer is completely different from the presently claimed interpolation filtering: Borer merely describes a "motion compensated de-interlacing," which is required for "television standard conversion" or "video-to-film conversion." Furthermore, in contrast to the present claimed invention of claim 6, which recites that "<u>coefficients for at least one of the interpolation filtering in the second search step and the further interpolation filtering in the third search step are determined from a minimization of the interpolation error performance, on the basis of a linear system of equations whose coefficients are derived from the principle of orthogonality, whereby said coefficients for at least one of the interpolation filtering in the second search step and the further interpolation filtering in the third search step are adapted to signals to be coded to achieve aliasing-reducing interpolation filtering with increased resolution of the motion vectors leading to a prediction gain and an increased coding efficiency</u>," nothing in Borer even remotely suggests the above-recited features of claim 6. Similarly, nothing in Ziegler or Yamashita suggests the above-recited features of claim 6.

For the foregoing reasons it is respectfully submitted that claim 6 and its dependent claims 7, 9-10 and 12 are not rendered obvious by the combination of Ziegler, Borer and Yamashita, and that the obviousness rejection of claims 6-7, 9-10 and 12 should be withdrawn.

Independent of the above, with respect to the Examiner's contention that the filter coefficients recited in claims 9 and 10 (which depend on claim 6)

are mere design choices "in order to have better results, such as reducing the aliasing effect," Applicants respectfully submit that this assertion is not only unsupported, but clearly false in view of the amended features of parent claim 6 concerning the determination of coefficients, i.e., parent claim 6 clearly indicates that the aliasing reduction is not the only parameter that is optimized by the claimed features concerning the determination of coefficients. Since the claimed features concerning the determination of coefficients recited in parent claim 6 clearly implicate optimization of other parameters, which optimization is not suggested by prior art, the claimed filter coefficients in dependent claims 9 and 10 clearly cannot be mere design choices.

III. Rejection of Claim 8 under 35 U.S.C. § 103(a)

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziegler, Borer and Yamashita as applied to claim 6 above, and further in view of U.S. Patent 5,684,538 ("Nakaya"). Applicants respectfully submit that the rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the

elements in the manner contemplated by the claim. M.P.E.P. § 2143.01 (citing In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

Applicants note that claim 8 depends on claim 6, and Nakaya does not remedy the deficiencies of the combination of Ziegler, Borer and Yamashita as applied against parent claim 6. For at least these reasons, the combination of Ziegler, Borer, Yamashita and Nakaya does not render claim 8 obvious.

IV. Rejection of Claim 11 Under 35 U.S.C. § 103(a)

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziegler, Borer and Yamashita as applied to claim 6 above, and further in view of U.S. Patent 5,991,447 ("Eifrig"). Applicants respectfully submit that the rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In addition, not only must the cited references teach or suggest each element of the claim, but the prior art must also suggest the desirability of combining the elements in the manner contemplated by the claim. M.P.E.P. § 2143.01 (citing In re Mills, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990).

In support of the rejection, the Examiner cites Eifrig as teaching "predicting video objects separately (Abs.), and inserting coefficients into a transmission bit stream (140) at a beginning." Without passing judgment on the merits of the Examiner's assertions, Applicants note that claim 11 depends on claim 6, and that the teachings of Eifrig does not remedy the deficiencies of the combination of Ziegler, Borer and Yamashita as applied against parent claim 6. Accordingly, Applicants submit that claim 11 is allowable over the combination of Ziegler, Borer, Yamashita and Eifrig.

For the foregoing reasons, the obviousness rejection of claim 11 should be withdrawn.

V.   Conclusion

In light of the foregoing, it is respectfully submitted that all pending claims 6-12 are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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